

New study suggests chronic cocaine use causes profound metabolic changes, reducing the body's ability to store fat

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Chronic cocaine use may reduce the body's ability to store fat, new research from the University of Cambridge suggests.

The scientists found that cocaine use may cause profound [metabolic changes](#) which can result in dramatic weight gain during recovery, a distressing phenomenon that can lead to relapse. It was previously widely believed that cocaine suppresses the appetite and that the problematic weight gain during rehabilitation was a result of patients substituting food for drugs.

Dr Karen Ersche, from the Behavioural and Clinical Neuroscience Institute at the University of Cambridge, said: "Our findings challenge the widely held assumptions that cocaine use leads to weight loss through [appetite suppression](#). Rather, they suggest a profound metabolic alteration that needs to be taken into account during treatment.

"Notable weight gain following cocaine [abstinence](#) is not only a source of major personal suffering but also has [profound implications](#) for health and recovery. Intervention at a sufficiently early stage could have the potential to prevent weight gain during recovery, thereby reducing personal suffering and improving the chances of recovery."

Led by Dr Ersche, the researchers scanned over sixty men to evaluate [body composition](#), diets and eating behaviours. Half of the men in the

sample had a dependency on cocaine while the other half had no personal or family history of drug abuse. They also measured the volunteers' leptin, a hormone which plays an important role in regulating appetite and energy use.

The researchers discovered that [cocaine users](#) expressed a preference for [fatty foods](#) and carbohydrates and also had patterns of uncontrolled eating. Yet, despite cocaine users' fatty diets they often experienced weight loss, and their body fat was significantly reduced compared to the [control group](#). Levels of the hormone leptin were also low in cocaine users and were associated with the duration of the user's [stimulant](#) use. A decrease in plasma leptin together with a high fat diet suggests an impaired energy balance, which typically leads to weight gain rather than weight loss.

The results suggest that overeating in regular users of cocaine pre-dates the recovery process, this effect being disguised by a lack of weight gain. As a result, when cocaine users in recovery discontinue using cocaine but continue consuming their high fat diets - now without the effects of cocaine on their metabolism - they gain weight.

Dr Ersche said: "We were surprised how little body fat the cocaine users had in light of their reported consumption of fatty food. It seems that regular cocaine abuse directly interferes with metabolic processes and thereby reduces [body fat](#). This imbalance between fat intake and fat storage may also explain why these individuals gain so much weight when they stop using cocaine.

"For most people weight gain is unpleasant but for people in recovery, who can gain several stones, this [weight gain](#) goes far beyond an aesthetic concern but involves both psychological and physiological problems. The stress caused by this conspicuous body change can also contribute to relapse. It is therefore important that we better understand

the effects of cocaine on eating behaviour and body weight to best support drug users on their road to recovery."

Professor Hugh Perry, chair of the Neurosciences and Mental Health Board at the Medical Research Council who funded the study, said "Credible scientific studies like this one, which help to dispel misconceptions and address common preconceptions with reliable data, can only benefit individuals in the longer term. This research has clear implications for our understanding of how the body processes fat during chronic cocaine dependency and also how the body adjusts during withdrawal and recovery from dependency."

The research was published in the journal *Appetite*.

More information: The paper 'The Skinny on Cocaine: insights into eating behavior and body weight in cocaine-dependent men' will be published in the August edition of *Appetite*
www.ncbi.nlm.nih.gov/pubmed/23920064

Provided by University of Cambridge

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